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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,811	10/29/2003	Toshiya Uemura	PTGF-03081	6770
21254	7590	10/28/2004	EXAMINER	
MCGINN & GIBB, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817			JACKSON JR, JEROME	
			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 10/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/694,811	Applicant(s) UEMURA, TOSHIYA	
	Examiner Jerome Jackson Jr.	Art Unit 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 August 2004.
- 2a) ☒ This action is **FINAL**.      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 6-26 is/are pending in the application.
- 4a) Of the above claim(s) 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,6,7,9,12-14,16,17,19,21,22 and 24-26 is/are rejected.
- 7) ☒ Claim(s) 8,10,11,15,18 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear what applicant intends from the limitation "an entirety of the surface of the substrate" as the convex member is not shown to completely cover the surface of the substrate. In fact it is stated that the III-V semiconductor must be grown on at least part of the substrate or on a buffer layer.

Claims 1,2,6,7,9,12-14,16,17,19,21,22,24-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Hata '558.

The previous rejection still applies. The changes to the claims do not structurally distinguish the claims over Hata. As stated previously, in figure 1 of Hata there is a transparent sapphire substrate 1, a convex light trapping member 2 formed over the substrate, and III-V semiconductor layers 3,4,5. Member 2 is made of aluminum oxide with a phosphor element (Cr) and has an index of refraction closer to sapphire than to the III-V semiconductor because sapphire is crystalline aluminum oxide. The phosphor "convex" member 2 can also be labeled a light trapping member because it absorbs generated light and re-emits it at a different wavelength. Labels do not structurally distinguish the claims over Hata. Claims 1 and 22 are thus rejected. Claims 2, 6, and 16

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are likewise rejected. Claims 7 and 17 are rejected as member 2 is formed directly on substrate 1. Claims 9 and 19, as best understood, do not distinguish over Hata where the members 2 extend across the entire substrate in figure 1. Claims 12 and 21 are rejected as the aluminum oxide convex member adjacent a GaN semiconductor layer in Hata will likewise reflect light rays greater than 47 degrees according to the laws of physics. Note also that applicant has stated that the prior art also exhibits such behavior where a sapphire substrate contacts a GaN semiconductor. See the description of the prior art on page 1 and figure 5B. Claim 13 is rejected as Hata performs in the same manner for light which is incident at an angle less than the critical angle. Claim 14 is rejected as members 2 of Hata are formed independently. In any event the process used to form the device does not structurally distinguish the claims over Hata.

Patentability of a product by process claim is determined by the final product, regardless of how actually made, *In re Hirao* 190 USPQ 15 at 17 (footnote 3). See also *In re Brown* 173 USPQ 685; *In re Luck* 177 USPQ 523; *In re Fessman* 180 USPQ 324; *In re Avery* 186 USPQ 161; *In re Wertheim* 191 USPQ 90; and *In re Morosi* 218 USPQ 289, all of which make it clear that it is patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above caselaw makes clear.

Claims 24, 25 and 26 are rejected as light which is incident below the critical angle and is not absorbed by the phosphor will be directly transmitted through the

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sapphire substrate. By the laws of physics a certain portion of the incident light will not be absorbed but pass straight through the convex member and sapphire substrate.

Claims 24-26 recite functional language and are broad.

Claims 8,10,11,15,18,20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant's arguments filed 8/10/04 have been fully considered but they are not persuasive. Applicant argues that Hata does not teach a "convex light trapping" member but rather a "phosphor". This argument is not convincing of patentability because the label "convex light trapping" does not structurally distinguish applicant's structure over Hata. As stated above phosphor member 2 of Hata comprises  $\text{Al}_2\text{O}_3$  (aluminum oxide) with Cr as a phosphor element. Because member 2 is aluminum oxide on a sapphire substrate it will function in the same manner as applicant's aluminum oxide on the sapphire substrate. In addition Hata's device will also re-emit red light for photons which are absorbed by the chromium phosphor. The inclusion of Cr in Hata does not structurally distinguish applicant's claims over Hata. The index of refraction of member 2 is still the index of refraction of aluminum oxide the main constituent. Light is reflected at the same critical angle, etc. This is a 35 USC 102 rejection. Hata does not have to describe the same function as applicant claims or argues for anticipation. He merely has to function or be able to function in the same manner. Moreover, it is not farfetched to label the phosphor of Hata a light trapping member as light either is passed through below the critical angle or is absorbed by the Cr and re-emitted as red light. The

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absorption is broadly "light trapping". Also, as above, Hata does not have to mention the refractive indices of the aluminum oxide or other layers. The layers meet the claimed refractive index recitations regardless. Again this rejection is under 35 USC 102.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

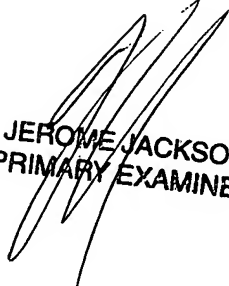
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerome Jackson Jr. whose telephone number is 571 272 1730. The examiner can normally be reached on t-th 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 571 272 1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jj

  
JEROME JACKSON  
PRIMARY EXAMINER